

**Preliminary Amendment**

Applicant: Gerold Gruender, et al.  
Serial No.: Not yet assigned  
(Priority Application No. 10 2004 009 055.6)  
(International Application No. PCT/DE2005/000299)  
Filed: Herewith  
(Priority Date: 23 February 2004)  
(International Filing Date: 22 February 2005)  
Docket No.: I431.174.101/FIN565PCT/US  
Title: **COOLING SYSTEM FOR DEVICES HAVING POWER SEMICONDUCTORS AND METHOD  
FOR COOLING THE DEVICE (as amended)**

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**IN THE CLAIMS**

Please cancel claims 1-9 without prejudice.

Please add claims 10-29 as follows:

Patent Claims **WHAT IS CLAIMED IS:**

1.-9. (Cancelled)

10. (New) A cooling system for devices comprising power semiconductor components, the power semiconductor components being arranged on printed circuit boards arranged in plug-in contact strips of a superordinate circuit carrier, the cooling system comprising:

a cooling plate, which is mounted in a pivotable manner on a plug-in contact strip in a region of one of the power semiconductor components, and which can be pivoted about an axis parallel to the plug-in contact strip,

the cooling plate having a first mounting and maintenance position pivoted away from the power semiconductor component, and a second cooling and operating position pressed onto the power semiconductor component.

11. (New) The cooling system as claimed in claim 10, comprising wherein the cooling plate has cooling fins on the cooling plate side not in contact with the power semiconductor component.

12. (New) The cooling system as claimed in claim 10, comprising wherein the cooling plate has cooling grid structures fitted on its edge sides.

13. (New) The cooling system as claimed in claim 12, comprising wherein the cooling grid structures cover the remaining adjacent semiconductor components of a printed circuit board.

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14. (New) The cooling system as claimed in claim 12, comprising wherein a cooling grid structure is arranged at an upper edge side of the cooling plate and projects beyond an upper edge of the printed circuit board and into a cooling air stream L.

15. (New) The cooling system as claimed in claim 10, comprising wherein a cooling air stream device that generates a cooling air stream is arranged in such a way that it has a forced cooling parallel to the plug-in contact strips of the device to be cooled.

16. (New) The cooling system as claimed in claim 10, comprising wherein a cooling air stream device that generates a cooling air stream is arranged in such a way that it has a forced cooling perpendicular to the plug-in contact strips of the device to be cooled, into which forced cooling project cooling grid structures connected to the cooling plate.

17. (New) The cooling system as claimed in claim 10, comprising wherein the cooling system has two cooling plates which are opposite one another and which are arranged in a pivotable manner on a plug-in contact strip in the region of a power semiconductor component.

18. (New) A power semiconductor device having a cooling system comprising:  
one or more power semiconductor components, the power semiconductor components being arranged on printed circuit boards arranged in plug-in contact strips of a superordinate circuit carrier;

a cooling plate, which is mounted in a pivotable manner on a plug-in contact strip in a region of one of the power semiconductor components, and configured to be pivoted about an axis parallel to the plug-in contact strip,

the cooling plate having a first mounting and maintenance position pivoted away from the power semiconductor component, and a second cooling and operating position pressed onto the power semiconductor component.

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19. (New) The device as claimed in claim 18, comprising wherein the cooling plate has cooling fins on the cooling plate side not in contact with the power semiconductor component.
20. (New) The device as claimed in claim 18, comprising wherein the cooling plate has cooling grid structures fitted on its edge sides.
21. (New) The device as claimed in claim 20, comprising wherein the cooling grid structures cover the remaining adjacent semiconductor components of a printed circuit board.
22. (New) The device as claimed in claim 20, comprising wherein a cooling grid structure is configured at an upper edge side of the cooling plate and projects beyond an upper edge of the printed circuit board and into a cooling air stream L.
23. (New) The device as claimed in claim 18, comprising wherein a cooling air stream device that generates a cooling air stream is arranged in such a way that it has a forced cooling parallel to the plug-in contact strips of the device to be cooled.
24. (New) The device as claimed in claim 18, comprising wherein a cooling air stream device that generates a cooling air stream is arranged in such a way that it has a forced cooling perpendicular to the plug-in contact strips of the device to be cooled, into which forced cooling project cooling grid structures connected to the cooling plate.
25. (New) The device as claimed in claim 18, comprising wherein the cooling system has two cooling plates which are opposite one another and which are arranged in a pivotable manner on a plug-in contact strip in the region of a power semiconductor component.
26. (New) A method for cooling a device having power semiconductor components, the method comprising:

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mounting pivotable cooling plates onto plug-in contact strips in the regions of power semiconductor components in a first mounting and maintenance position;

fitting printed circuit boards with power semiconductor components on the plug-in contact strips and pivoting the cooling plate about an axis parallel to the plug-in contact strip into a second cooling or operating position, in which the cooling plate bears on the power semiconductor component;

orienting a device generating a cooling air stream, such that the cooling air stream flows parallel or perpendicular to the plug-in contact strips; and

providing the cooling air stream during operation of the power semiconductor components in the event of a critical temperature of the power semiconductor components being reached.

27. (New) A cooling system for devices comprising power semiconductor components, the power semiconductor components being arranged on printed circuit boards arranged in plug-in contact strips of a superordinate circuit carrier, the cooling system comprising:

means for providing a cooling plate, which is mounted in a pivotable manner on a plug-in contact strip in a region of one of the power semiconductor components, and which can be pivoted about an axis parallel to the plug-in contact strip,

means for moving the cooling plate means between a first mounting and maintenance position pivoted away from the power semiconductor component, and a second cooling and operating position pressed onto the power semiconductor component.

28. (New) The cooling system as claimed in claim 27, comprising wherein the cooling plate mean has cooling fins on the cooling plate side not in contact with the power semiconductor component.

29. (New) The cooling system as claimed in claim 27, comprising wherein the cooling plate means has cooling grid structures fitted on its edge sides.